

REVISION OF THE GENUS

METAEUCHROMIUS BLESZYNSKI

(LEPIDOPTERA: PYRALIDAE: CRAMBINAE)

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The species of the genus *Metaeuchromius* Bleszynski, 1960 are revised. *Metaeuchromius* is a senior synonym of *Pseudeuchromius* Bleszynski, 1965. *Pseudeuchromius latus* (Staudinger, 1870) and *Diptychophora euzonellus* Hampson, 1896 are transferred to *Metaeuchromius*. Three new species are described: *M. latoides* (Turkey), *M. changensis* (China) and *M. inflatus* (Nepal). Newly discovered scent organs on the male abdominal sternite are figured and described. A key is provided together with full (re)descriptions of all species, with notes on distribution and biology.

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Keywords. – Pyralidae; Crambinae; *Metaeuchromius*; key; new species; checklist; tympanal organs; abdominal scent organs.

Metaeuchromius was described as a monotypic genus for *Eromene yunnanensis* Caradja, 1937. Bleszynski (1965) described the second species of the genus, *Metaeuchromius circe*. *Eromene latus* Staudinger, 1870 was transferred to the genus *Pseudeuchromius* by Bleszynski (1965) and is now included in the genus *Metaeuchromius*. *Diptychopora euzonellus* Hampson, 1896 is here transferred to *Metaeuchromius*. *Metaeuchromius flavofascialis* Park, 1990 is the most recently described species. At the start of this study the genus comprised three species. In this article three new species are described and two species are transferred to *Metaeuchromius*.

Thus, the genus now contains eight species. *Metaeuchromius* has its main distribution in the eastern Palaearctic. Only *M. latus* and *M. latoides* occur in the more western part of the Palaearctic.

Bleszynski (1965) erected the monotypic genus *Pseudeuchromius* for *Euchromius latus* (Staudinger, 1870). Comparing the diagnoses given by Bleszynski (1965) of *Pseudeuchromius* and *Metaeuchromius* the following characters to distinguish *Pseudeuchromius* from *Metaeuchromius* are found: (1) The more or less closed cell of the hind wing; (2) The elongated apophyses.

Ad. (1) Upon checking various specimens of *Pseudeuchromius latus* I found that the cell of the hind wing in this species is also more or less closed. Ad (2)

In my opinion the elongation of the apophyses is not a very strong character at the generic level. The elongated apophyses of *P. latus* can be regarded as an secondarily derived character to facilitate the deposition of eggs in narrow and relatively deep locations.

This together with the newly discovered abdominal scent organs, which are found in *P. latus*, *M. yunnanensis* (type species of *Metaeuchromius*) and several other species of *Metaeuchromius*, have made me decide to synonymize *Pseudeuchromius* with *Metaeuchromius*.

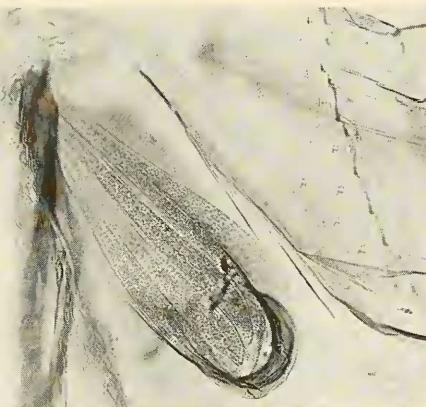
Material and methods

The formula for the black terminal dots mentioned in the species descriptions is read as follows; 2-2-3-2 stands for: the black terminal dots closest to the apex start with a group of two, followed by a second group of two dots, a group of three dots and finally a group of two dots near the tornus (fig. 7).

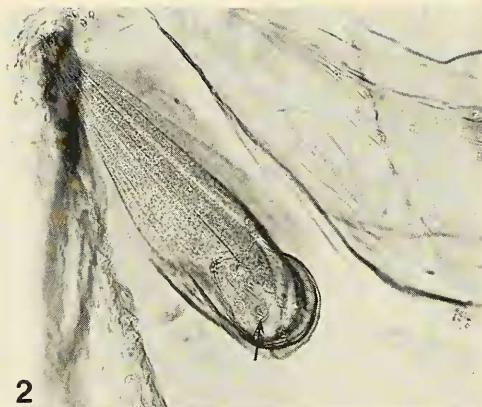
The spelling of the localities is taken literally from the labels as to make tracing of the material easier. For the Chinese material the equivalent in Pinyin transcription is given.

Distribution maps are based on personally examined material only.

The purpose of the key is to make identification as easy as possible, starting with external characters and,



1



2

Figs. 1-2. *M. euzonellus*. – 1, Specialized scales covering the opening of the abdominal scent organ. 2, 'Pits' (see arrow) in abdominal scent organ.

when unavoidable, followed by characters of the genitalia. Identification can be difficult or even impossible if the specimen is not in a good condition. In such cases the genitalia have to be checked.

The terminology of the tympanal organs follows Maes (1985).

Abbreviations for specimen depositories follow Arnett et al. (1993).

Metaeuchromius Bleszynski, 1960

Metaeuchromius Bleszynski, 1960: 217. Type species: *Eromene yuenanensis* Caradja, 1937: 151.

Pseudeuchromius Bleszynski, 1965: 90. Type species: *Eromene lata* Staudinger, 1870: 204. Syn. n.

Characteristics

The genus *Metaeuchromius* is externally very similar to *Euchromius* Guenée, 1845 and *Miyakea* Marumo, 1933. *Metaeuchromius* is in my opinion more closely related to *Miyakea* than to *Euchromius*. This in the light of *Miyakea* and *Metaeuchromius* sharing the rounded not forwardly protruding frons, the 'broad' fore wings, the absence of a sclerotized spinula and the apex of the gnathos directed upward. Both genera also share the closed cell of the hindwing.

Landry (1995) sets *Euchromius* and *Platyses* separate from the other Crambini as the most plesiomorphic group. This based on the synapomorphic character-state 11 (0): R5 of the forewing free from other radial veins. Both *Metaeuchromius* and *Miyakea* share this synapomorphy with them.

The character-states by which *Euchromius* and *Platyses* are placed in the Crambini are: character 15 (0): cell of the hindwing open; 27 (1): apex of the gnathos directed downward; 41 (1): papillae anales not coalesced.

Character-state 41 (1) is also found in *Metaeuchromius* and *Miyakea*. Character-state 15 (0) is not found in *Metaeuchromius* and *Miyakea* (the cell of the hind wing is closed), but I agree with Landry (1995: 37) this apomorphic character may have arisen independently. As regarding to character-state 27 (1) the same arguments may apply for *Metaeuchromius* and *Miyakea* as for *Ancylolomia* (Landry 1995: 44): 'the most parsimonious solution regarding character-state changes in this character is that the apomorphic state occurs once in the Crambini except *Ancylolomia* and independently in *Calamotropha*, *Evergestis* and *Scoparia*'. My conclusion based on the former paragraphs is: *Metaeuchromius* is more closely related to *Miyakea* than to *Euchromius*. A phylogenetic analysis is not within the scope of the present study. Therefore I make no comment of the relationship of *Metaeuchromius* within the Crambinae. To make a more scientifically thorough decision whether *Metaeuchromius* and *Miyakea* form a monophyletic group with *Euchromius* and *Platyses* two conditions must be fulfilled: A) both genera must be included in the cladistic analysis. B) The cladistic analysis must be carried out with a monophyletic group and not by using a geographical area with taxa whose monophyletic origin is highly disputable.

External characters

Metaeuchromius has no character at genus level to distinguish it from *Miyakea* and *Euchromius*. For the description of wings patterns etc. refer to Schouten (1988).

Male genitalia

The uncus is broad (except in *M. euzonellus*), ending in a sharp-pointed tip. Gnathos is simple hook-

shaped as long as the uncus. The tegumen has no special shapes or structures. Sacculus present or inconspicuous. Processus of sacculus absent. Processus inferior valvae absent. Processus basalis present or not, usually rounded. Cucullus oblong to elongated usually ending in a sharp-pointed tip. Juxta variable, v-shaped, rectangular or slender. Vinculum without any special structures. Aedeagus varying from short to long and slender, armed with many minute to one cornutus and cornuti small to large.

Female genitalia

Papillae analis normal to small. Apophyses posteriores and anteriores short to very long. Ostium simple. Ductus bursae short or long, with or without sclerotization, with or without a pouch-shaped enlargement. Ductus seminalis slender. Bursa copulatrix rounded or oblong, with or without signa, or sclerotization.

Tympanal organs

In *Metaeuchromius* the tympanum and conjunctivum make an angle and the bulla tympani are of the 'open' type. Consequently, *Metaeuchromius* has tympanal organs of the 'Crambidae' type, as defined by Minet (1982) and Maes (1985).

Description of the tympanal organs in *Metaeuchromius* (figs. 3, 4). — The praecinctiorium is simple sac-shaped, no thorn-like sclerotization at the connection with the pons tympani. The bulla tympani are bean-shaped. The fornic tympani, supporting the conjunctivum, are well developed and clearly visible. The rami tympani are not connected, not forming a well defined semi-circle as in *Euchromius* and *Miyakea*. The sacci tympani are open and not very deep. The processi tympani vary in size, but are small to almost absent in *lata*. The processi tympani are dorsal-ventrally orientated and thus it is not always possible to measure their size. The spinula is not sclerotized. The venula prima, situated lateral to the fornic tympani, is always present. The venula secunda, posterior of the fornic tympani, is more or less an extension of the venula prima and not very well developed in some species.

Abdominal scent organs

The presence of abdominal scent organs in Crambinae species was up to now unknown. Several species of *Metaeuchromius* i.c. *yuennanensis*, *changensis*, *circe*, *lata* and *euzonellus* have abdominal scent organs on sternite III of the males. The scent organs can be classified as type 5 as used by Scoble (1992). The type 5 scent organs consist of a group of scales which cover a separately located glandular area. The scales can be differentiated in various ways. The type 5 organs are found on various parts of the body e.g. legs, wings, abdomen. The type 5 scent organs have been

discovered on several families, Noctuidae, Nymphalidae and Sphingidae (Scoble 1992). The scent organs in males are generally believed to be used when a male is in close contact with a female.

Diagnosis

(1) The dorsal insertion of the ductus ejaculatorius is subterminal; (2) The gnathos is simple, hook-shaped; (3) Sternite III of the males bear a more or less developed pair of 'scent organs' sometimes with specialized scales (except in *flavofascialis* and *inflatus*); (4) The frons is rounded; (5) M1 of the hindwing is located in the lower angle of the more or less closed cell; (6) The ramus tympani is not connected, thus not semicircular; (7) The saccus tympani is 'open' and small; (8) The spinula is not sclerotized.

Checklist of *Metaeuchromius* Bleszynski

changensis sp. n.

circe Bleszynski, 1965

euzonellus (Hampson, 1896) comb. n.

flavofascialis Park, 1990

inflatus sp. n.

latooides sp. n.

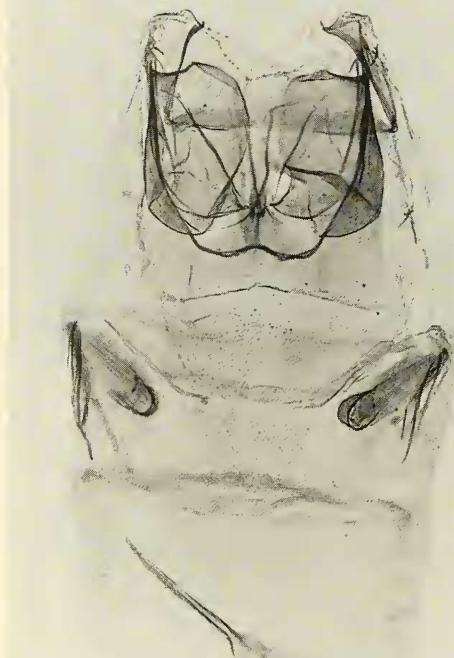
latus (Staudinger, 1870) comb. n.

yuennanensis (Caradja, 1937)

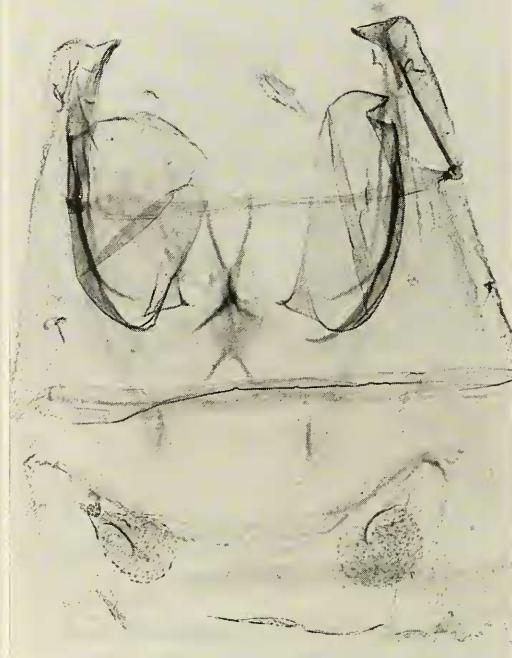
Key to the species of *Metaeuchromius* Bleszynski

The key can only be used when specimens are in a good condition. For a definite identification always check the genitalia.

1. Six, seven or eight black dots at termen of the forewing 2
- Four to five black dots at termen of the forewing *euzonellus*
2. Groundcolour of the forewing pure white, usually a clear dark brown to black spot in posterior area *inflatus*
- Groundcolour of the forewing dirty to creamy white 3
3. Medial fascia whitish 4
- Medial fascia yellowish 6
4. Males (male of *latooides* unknown) *latus*
- Females 5
5. Bursa copulatrix with one minute signum *latus*
- Bursa copulatrix without a signum *latooides*
6. Hindwing dark brown *circe*
- Hindwing creamy white to grey or light grey-brown 7
7. Medial fascia convex *yuennanensis*
- Medial fascia straight 8
8. Females (female of *flavofascialis* unknown) *changensis*



3



4

Figs. 3-4.—3, *M. euzonellus*. Abdomen, ventral aspect showing the tympanal organs and the abdominal scent organs on sternite III. 4, *M. changensis*. Abdomen, ventral aspect showing the tympanal organs and the rounded scent organs on sternite III.

- Males 9
- 9. Large group of cornuti on the vesica occupying two-thirds of the length of aedeagus (fig. 16)
- *changensis*
- vesica with a group of cornuti occupying less than one-third of the aedeagus (fig. 20)
- *flavofascialis*

Metaeuchromius changensis sp. n.
(figs. 4, 6, 9, 12, 16)

Type-material. — Holotype: ♂, 'Chang Yang A.E. Pratt Coll. May 1888', GS 17849. Paratypes: 2 ♂, 'Chang Yang A.E. Pratt Coll. June 1888', GS 17854, other male without abdomen. 2 ♂ 1 ♀, 'Siang-yan-fu [=Xiangfan] China W. 5000ft /93', without abdomen. All type-material in BMNH.

Diagnosis. — Externally very similar to the other species in the genus. Differs in male genitalia (female genitalia unknown) in having asymmetrical valvae in

combination with the aedeagus as long as or longer than the length of the larger valve.

External characters (fig. 12). — Wingspan 14-17 mm. Frons not produced forward, creamy white, dark brown centre; vertex creamy white to brown; the length of the labial palp is two to two and a half times the eye diameter, sides brown becoming lead-grey, grey from above, creamy white from below; maxillary palp brown, terminal part creamy white; on antenna creamy white, inconspicuous darkly ringed. Thorax brown; patagia brown; tegulae brown, inner side lined creamy white. Forewing, groundcolour creamy white densely suffused with ochreous to dark brown scales, posterior area with one, more or less clear, dark brown spot; medial fascia straight, running to one-third of the dorsum; subterminal line brown-grey, about midway between terminal dots and termination of posterior area; area adjacent to terminal black dots white; seven black terminal dots, formula 2-3-2; fringes shiny evenly grey. Hindwing light to dark grey, subterminal fascia present, termen darkly bor-

dered; fringes creamy white with darker line.

Abdomen (figs. 4, 6). — Scent organs incorporated in the abdomen, roundish, kidney-shaped, small opening laterally directed. Wall of scent organs with pits. No special scale formation observed in relation to the scent organs.

Male genitalia (fig. 16). — Uncus normal, tapering to sharp pointed tip; gnathos equal in length, dorsal thorns absent; valvae asymmetrical, sacculus slender in one valve, normal in the other, processus basalis small somewhat rectangular, cucullus ending in bent pointed tip, unequal in size; juxta oblong; vinculum normal; aedeagus as long as or longer than length of larger valve, with many cornuti, total length of cornuti shorter than length of aedeagus.

Female genitalia. — Unknown, the only available female specimen lacks an abdomen.

Biology. — Unknown. Specimens caught in May and June. Found at an altitude of 1650 m.

Distribution (fig. 9). — Eastern part of China.

Metaeuchromius circe Bleszynski, 1965

(figs. 10, 14, 18, 23)

Metaeuchromius circe Bleszynski, 1965: 87. Holotype: ♂, 'Kwansi F.7.30', GS 7251 BM. BMNH.

Material. — 1♂ 4♀. China: Changyang, 1♀ (BMNH); Kwansi, 1♂ 1♀ (BMNH); Siang-yang-fu [=Xiangfan], 2♀ (BMNH).

Diagnosis. — Differs from all other species in having dark brown wings in combination with a wingspan of 14-16 mm.

External characters (figs. 14). — Wingspan 14-16 mm. Frons not produced forward, mingled creamy white with brown, vertex creamy white to brown; the length of the labial palp is two to two and a half times the eye diameter, sides creamy white at base then brown, creamy white and terminally brown, light brown to brown from above, creamy white from below; maxillary palp creamy white, darkly ringed at base of last segment; antenna creamy white to brown. Thorax brown; patagia creamy white with two broad longitudinal dark brown stripes; tegulae dark brown, inner side clearly lined creamy white. Forewing, groundcolour creamy white very densely suffused with ochreous to dark brown scales; medial fascia single, yellow, nearly straight to slightly convex, inner side whitish bordered, sometimes with small yellowish spot, fascia running to ca. one-third of the dorsum; subterminal line dark brown, about midway between terminal black dots and termination of posterior area; area adjacent to terminal black dots white; seven black terminal dots, formula 2-3-2;

fringes shiny, evenly grey. Hindwing dark brown, subterminal fascia absent; fringes light brown with dark brown line.

Abdomen. — Sternite III with elongated groove, without pits. The slide is too badly made to describe scale formation if present.

Male genitalia (fig. 18). — Uncus stout, tapering to sharp pointed tip; gnathos equal in length, dorsal basal part bluntly enlarged; sacculus inconspicuous; processus basalis small, inconspicuous; costa stronger sclerotized ending in pointed tip; cucullus normal; juxta broad triangular; vinculum short, rectangular; aedeagus with circa four large cornuti.

Female genitalia (fig. 23). — Papillae anales indent-ed; tergite VIII semi-connected forming inconspicuous projection-like sclerotization; ostium simple; ductus bursae short, sclerotized, terminal part broadened, sac-like; ductus seminalis not found in slide; bursa copulatrix oblong, without signum.

Biology. — Unknown. Specimens have been caught in July and August. Found at an altitude of 1650 m.

Distribution (fig. 10). — East and central China.

Remarks. — Bleszynski (1965) quotes the holotype label as 'Kwansi F.7.31', but upon checking, it reads 'F.7.30'.

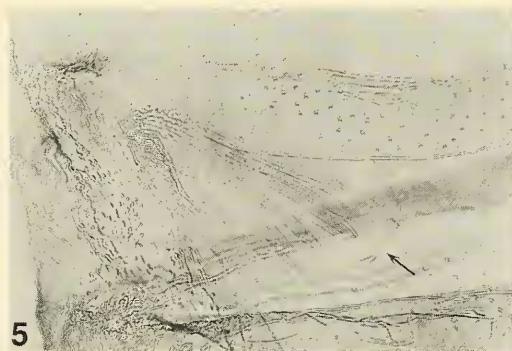
Metaeuchromius euzonellus (Hampson, 1896) comb. n.
(figs. 1, 2, 3, 9, 13, 21, 27)

Diptychophora euzonella Hampson, 1896: 18. Lectotype: ♂, 'Khasi June, 1894 Nat. Coll', GS 7481 (BMNH).

Material. — 20♂ 3♀. India: Assam: Cherrapunji, 4♂ 2♀ (BMNH); Khasi Hills, 7♂ (BMNH); Khasi, 9♂ 1♀ (BMNH).

Diagnosis. — Resembles species with forewing groundcolour white, differs in having five or four black terminal dots. Differs in male genitalia in having a fish-hook shaped gnathos, strongly bent downward with upward curved tip. Differs in female genitalia from all other species in having tergite VIII armed with sharp pointed tips.

External characters (fig. 13). — Wingspan 12-13 mm. Frons slightly produced forward, white; vertex white; the length of the labial palp is three times the eye diameter, with sides white at base, becoming brown-grey, white from above and below; maxillary palp white, brown at base; on antenna white, brownish on upper half. Thorax, patagia and tegulae brownish white. Forewing groundcolour white, densely suffused with dark-brown scales, anterior part with yellow-brown patch at costa, sometimes a second brown patch near the medial fascia; medial fascia single, slightly convex, running to halfway of the dor-



5



6

Figs. 5-6. – 5, *M. latus*. Specialized scales covering the shallow, elongated scent organ. Arrow points to the terminal edge of the glandular groove. 6, *M. changensis*. Abdominal scent organ with small opening (arrow) and "pits" in the wall of the abdominal scent organ.

sum; subterminal line diffuse, brown, about midway between terminal dots and termination of posterior area; area adjacent to terminal dots white; five or four black terminal dots, formula 3-2 or 3-1; fringes shiny, evenly lead-grey, two white patches. Hindwing creamy white to light brown, subterminal fascia present, termen darkly bordered; fringes white with brownish line.

Abdomen (figs. 1-3). – Scent organs incorporated in the abdomen, round, large opening laterally directed. Wall of scent organs with large pits. Scent organs covered with relatively broad scales. Tips of scales touch scent organ pit. Scales can be put at a right angle from the abdomen, thus spreading the scent organs' contents (fig. 3).

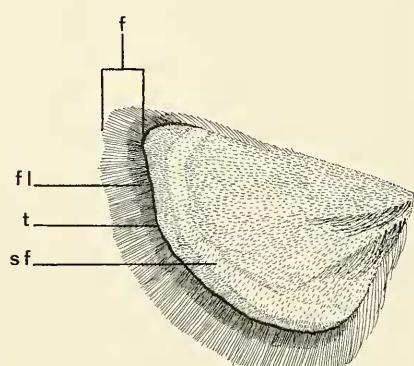
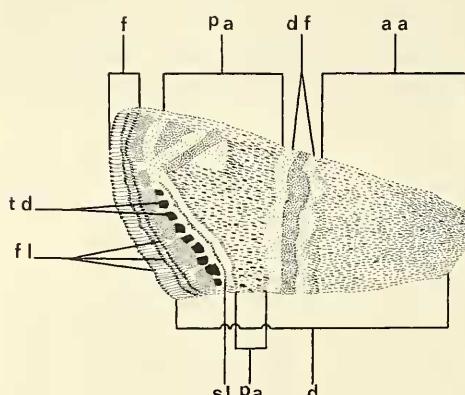
Male genitalia (fig. 21). – Uncus strongly bent, tip curved upward; gnathos proceeding beyond uncus, dorsal thorns elongated; sacculus inconspicuous; costa armed with very stout double pointed projection, smaller one with curved tip, cucullus slender, tip pointed; juxta narrow; aedeagus slender, armed with tooth-like cornutus.

Female genitalia (fig. 27). – Papillae anales small, indented; membrane of tergite VIII without sclerotization, tergite VIII with sharp pointed tips; ostium simple with broadly rounded projection; ductus bursae long; ductus seminalis narrow; bursa copulatrix roundish, with spined area, without signum.

Biology. – Unknown. Caught in April, May, June, July and September.

Distribution (fig. 9). – India: Assam.

Fig. 7. Wing pattern. aa = anterior area; d = dorsum; df = double fascia; f = fringe; fl = fringe line; Pa = posterior area; sf = subterminal fascia; sl = subterminal line; t = termen; td = terminal dots.



Metaeuchromius flavofascialis Park, 1990

(fig. 10, 20)

Metaeuchromius flavofascialis Park, 1990: 139. Holotype: ♂, Chuncheon, GW, 30.VII.1988 (K.T. Park), GS 1840. Kangwon National University, Chuncheon.

Material. — 6♂. China: West Tien-mu-shan [=Tianmu Shan], 1♂ (BMNH). Korea: Chuncheon, 2♂ (KNUC), 1♂ (RTAS); Sogumgang, 1♂ (KNUC); Mt. Samag, 1♂ (KNUC).

Diagnosis. — Externally very similar to the other species of the genus. Differs in male genitalia (female unknown) in having the cucullus ending in a slender tip, in combination with the group of cornuti occupying less than one-third of the length of the aedeagus.

External characters. — Wingspan 13 mm. Frons not produced forward, creamy white; vertex creamy white; the length of the labial palp is one and a half times the eye diameter, with the sides creamy white at base becoming brown, creamy white to brown from above and below; maxillary palp creamy white, darkly ringed at base of last segment; on antenna creamy white with some inconspicuous darker scales. Thorax creamy white to light brown; patagia creamy white with two broad longitudinal brown stripes; tegulae brown, inner side lined creamy white. Forewing groundcolour creamy, white densely suffused with ochreous to dark brown scales, posterior area with one or two small inconspicuous dark brown spots; medial fascia nearly straight, running to circa one-third of the dorsum; subterminal line brown, about midway between terminal dots and termination of posterior area; area adjacent to terminal black dots white; seven black terminal dots, formula 2-3-2; fringes shiny, evenly grey. Hindwing creamy white to light grey, subterminal fascia very inconspicuous, termen darkly bordered; fringes creamy white with darker line.

Abdomen. — No indication of scent organs or special formation of scales on sternite III.

Male genitalia (fig. 20). — Uncus tapering to sharp pointed tip; gnathos about equal in length to uncus, dorsal thorns absent; sacculus inconspicuous, processus basalis slender, fold reaching to the middle of the tip of the valvae, cucullus ending in sharp pointed tip; juxta elongated, more or less rectangular; aedeagus relatively large, vesica with one group of cornuti.

Female genitalia. — Female unknown.

Biology. — Unknown. Caught in July, August and September. The locality of Mt. Samag was at 650 m altitude.

Distribution (fig. 10). — Eastern part of China and Korea.

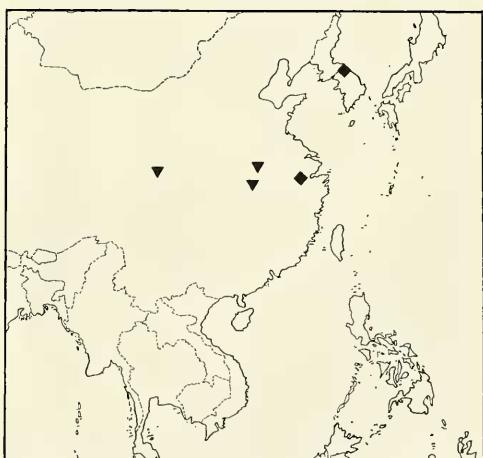
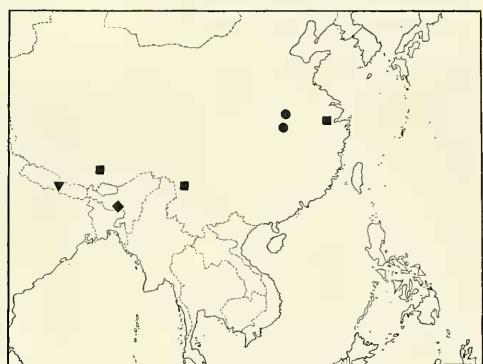
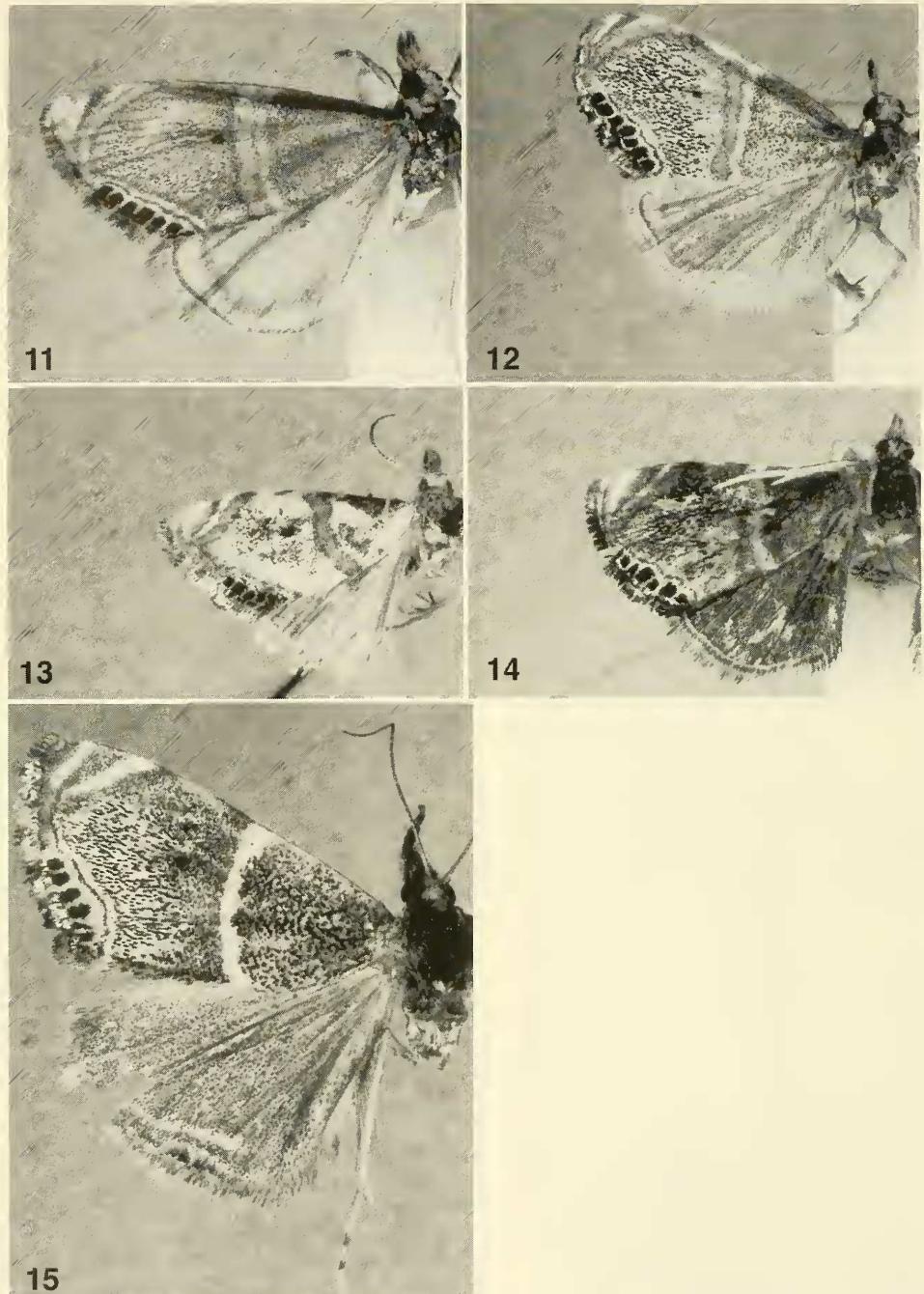


Fig. 8. Distribution map. *M. latus* (dots) and *M. latoides* (triangles).

Fig. 9. Distribution map. *M. yuennanensis* (squares), *M. changensis* (dots), *M. inflatus* (triangle) and *M. euzonellus* (diamond).

Fig. 10. Distribution map. *M. circe* (triangles), *M. flavofascialis* (diamond).



Figs. 11-14. – 11, *Metaeuchromius yuennanensis*. 12, *Metaeuchromius changensis*. 13, *Metaeuchromius euzonellus*. 14, *Metaeuchromius circe*.

Fig. 15. *Metaeuchromius latus*

Metaeuchromius inflatus sp. n.
(figs. 9, 22, 28)

Type-material. – Holotype ♂, ‘Nepal Prov. Chisapani Garhi Bhainse Dobhan 730m 16.-20.VII.1967 leg. Dierl-Schaft Staatsslg. München’, GS RS 483. Paratype ♀, same data as holotype, GS RS 501, both in ZSMC.

Diagnosis. – Resembles species with groundcolour of forewing white. Differs in male genitalia in having the processus basalis strongly swollen, rounded. Can be distinguished in female genitalia in having the ostium lip-shaped in combination with broad, strongly sclerotized ductus bursae continued into a sac-like part.

External characters. – Wingspan 11-13 mm. Frons not produced forward, white to creamy white; vertex creamy white, the length of the labial palp is one and a half to two times the eye diameter, with the sides white to creamy white, tip brown-grey, light brown from above, white to creamy white from below; maxillary palp white, dark brown ringed at base of last segment; antenna white-brown ringed. Thorax, patagia and tegulae white with yellow scales. Forewing groundcolour pure white, densely suffused with brown scales; medial fascia single more or less straight, running to halfway to one-third of the dorsum; subterminal line brown, closer to termination of posterior area than to terminal black dots; area adjacent to terminal black dots broad, white; seven black terminal dots, formula 2-3-2; fringes shiny, white with brown lines in upper half, brown at base and white terminally in lower half. Hindwing white, subterminal fascia absent, termen with inconspicuous dark spot at inner corner; fringes white.

Abdomen. – No indication of scent organs or special formation of scales on sternite III.

Male genitalia (fig. 22). – Uncus long, slender, tapering to sharp pointed tip; gnathos equal in length to the uncus, without dorsal thorns; processus basalis large, roundish, swollen, cucullus ending in inwardly bent tip; juxta somewhat rectangular; vinculum long, pointed; aedeagus relatively large, with two large cornuti.

Female genitalia (fig. 28). – Papillae anales more or less fused; ostium relatively large, with small lip; ductus bursae broad, strongly sclerotized in upper part, followed by enlarged sac-like part, ending slightly swollen above bursa copulatrix; ductus seminalis narrow; bursa copulatrix oblong, without signa.

Biology. – Unknown. The specimens were caught in July at 730m altitude.

Distribution (fig. 9). – Only known from Nepal.

Metaeuchromius latoides sp. n.
(fig. 8, 26)

Type-material. – Holotype: ♀ ‘Turquie Acigol U.V., 31-7-1973 U. Dall’Asta’ GS R.S.470 (in MAES).

Diagnosis. – Differs from most species in having a whitish medial fascia. Differs from *M. latus* in having eight black terminal dots (this character may turn out to be invalid when more material is collected). Differs in female genitalia from *M. latus* in lacking the small roundish signum in the oblong bursa copulatrix.

External characters. – Wingspan 19 mm. Frons not produced forward, creamy white mottled with brown; vertex creamy white mottled with brown; the length of the labial palp is two and a half times the eye diameter, creamy white mottled with brown; maxillary palp lost on holotype; on antenna creamy white to brown. Thorax and patagia creamy white mottled with dark brown; tegulae creamy white, coarsely brown mottled. Forewing groundcolour creamy white, densely suffused with ochreous to dark brown scales, posterior area with two, more or less clear, dark brown spots; medial fascia single, convex, white, running to about halfway of the dorsum, subterminal line brown, about midway between terminal dots and termination of posterior area; area adjacent to terminal dots yellow to white; eight or nine black terminal dots, formula 2-2-3-1 or 2-2-3-2; fringes too worn to be described. Hindwing brownish, light subterminal fascia present, termen darkly bordered; fringes brownish.

Male genitalia. – Unknown.

Female genitalia (fig. 26). – Papillae anales small; membrane and tergite VIII very long, tergite very lightly sclerotized, apophyses very long; ostium very simple, roundish; ductus bursae normal swollen under ostium, finely wrinkled; ductus seminalis narrow; bursa copulatrix weakly sclerotized, oblong, without signa.

Biology. – Unknown. The holotype was caught at the end of July.

Distribution (fig. 8). – Turkey.

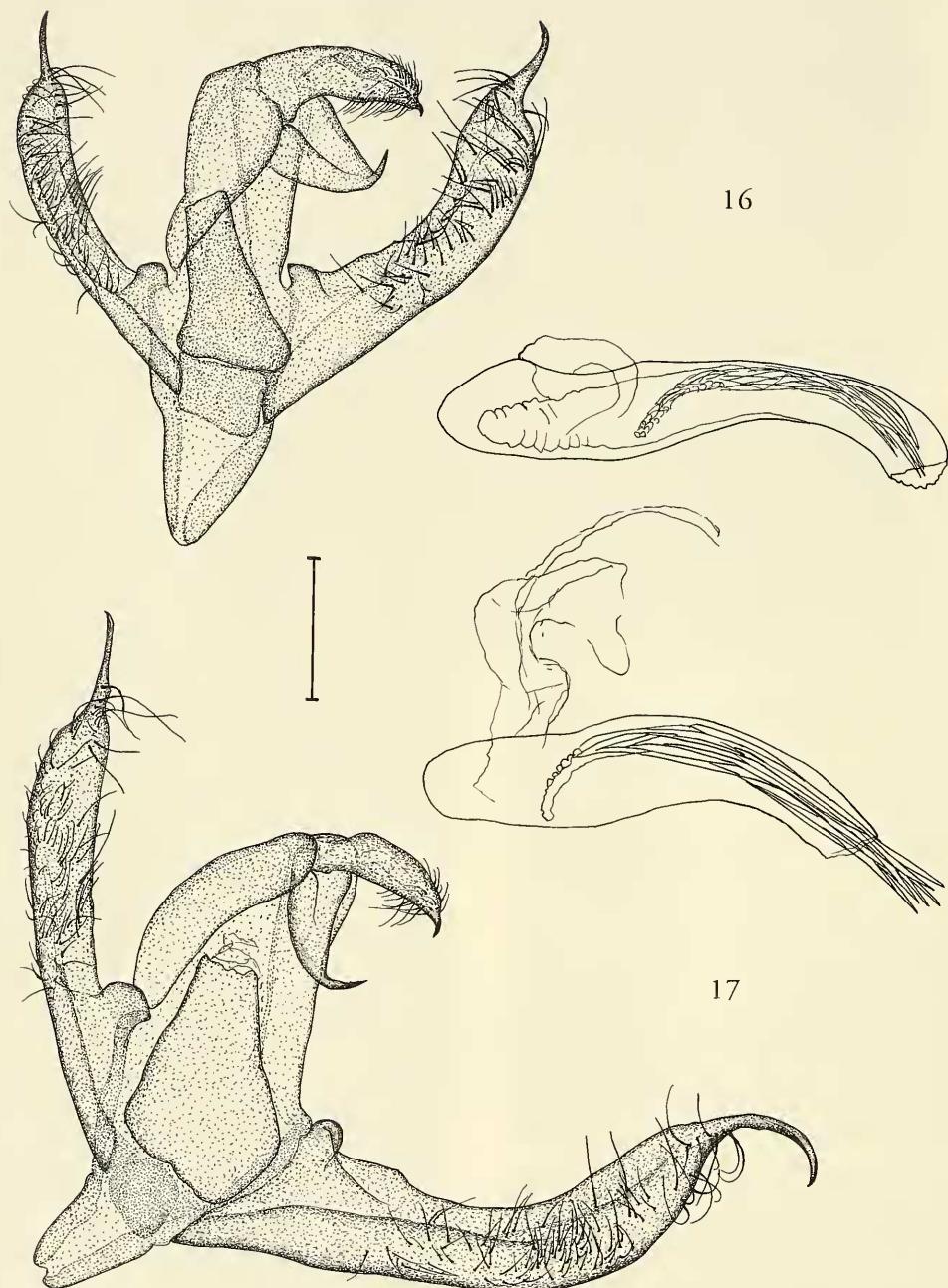
Metaeuchromius latus (Staudinger, 1870) comb. n.
(figs. 5, 8, 15, 19, 25)

Eromene lata Staudinger, 1870: 204. – Holotype ♀, ‘Graecia Kr.’, GS 1147 (in ZMHB).

Pseudeuchromius latus (Staudinger, 1870) – Bleszynski, 1965: 90.

Pseudochromius latus (Staudinger). – Maes 1986: 79 [lapsus calami].

Material. – 5♂, 13♀. Greece: Graecia Kr. 1♀



Figs. 16-17. Male genitalia; ventro-caudal aspect, valvae spread; aedeagus separated, lateral aspect. – 16, *Metaeuchromius changensis*; 17, *Metaeuchromius yuennanensis*. Scale bar 0.5 mm.

(ZMHB); 2 km SW of Anoia, 1♂ (RTAS); Mt. Taygetos, 1♂ (RTAS), 3♂, 2♀ (ZMUC); Zachlorou, 1♂, 2♀ (BMNH), 1♀ (RTAS), 7♀ (ZMUC).

Diagnosis. – Differs from most species in having a whitish medial fascia. Differs from *M. latooides* in having six or seven black terminal dots (this character may turn out to be invalid when more material becomes available). Differs in female genitalia from *M. latooides* (male unknown) in having a small signum in the roundish bursa copulatrix.

External characters (fig. 15). – Wingspan 18-22 mm. Frons not produced forward, creamy white to light brown; vertex creamy white; the length of the labial palp is three times the eye diameter, with the sides light brown to creamy white at base, becoming lead-grey, brown from above, creamy white from below; maxillary palp brown; on antenna creamy white, darkly ringed. Thorax light brown to brown; patagia brown; tegulae brown evenly mottled. Forewing groundcolour creamy white, densely suffused with ochreous to dark brown scales, posterior area with two more or less clear dark brown spots; medial fascia single, convex, white, running to halfway to one-third of the dorsum; subterminal line dark-brown, about midway between terminal dots and termination of posterior area; area adjacent to terminal dots yellow to white; six or seven black terminal dots, formula 2-3-1 or 2-3-2; fringes evenly lead-grey. Hindwing light grey, subterminal fascia present, termen darkly bordered; fringes grey to creamy white.

Abdomen (fig. 5). – Scent organs only indicated by minute fold of sternite III, pits absent. Sternite III armed with elongated broad scales.

Male genitalia (fig. 19). – Uncus stout, tapering to sharp double pointed tip; gnathos equal in length or slightly shorter than uncus, dorsal thorns absent; sacculus inconspicuous, sclerotized, processus basalis inconspicuous, costa stronger sclerotized to halfway, stronger sclerotized part ending pointed, cucullus broad, rounded; juxta elongated; vinculum long, pointed; aedeagus very large, posterior part swollen, with one elongated group of short cornuti.

Female genitalia (fig. 25). – Papillae anales small; membrane and tergite VIII very long, tergite very lightly sclerotized, apophyses very long; ostium very simple, round; ductus bursae widening proximal to the ostium, then wrinkled, distal half with contorted slightly sclerotized lining; ductus seminalis narrow; bursa copulatrix roundish, with one very small roundish signa.

Biology. – Habitat at 600 m altitude: shrubby and hilly area grazed occasionally by sheep. Specimens were caught in the last week of June, July and August at an altitude of 600 to 1000 m.

Distribution (fig. 8). – So far only found in Greece; records from Turkey (e.g. Maes 1986) may refer to *M. latooides*.

Remarks. – Bleszynski (1965) does not mention a signum in his description nor is one present in the drawing of the female genitalia. Upon checking the holotype, it turned out to have a small signum. Perhaps due to not removing the genitalia from the abdomen and not colouring the slide Bleszynski missed seeing the small signum.

Metaeuchromius yuennanensis (Caradja, 1937)
(figs. 9, 11, 17, 24)

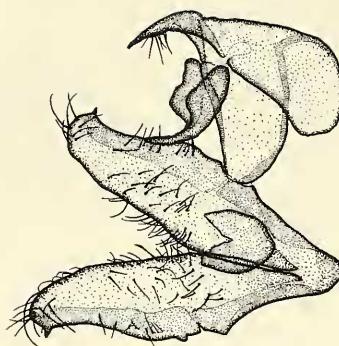
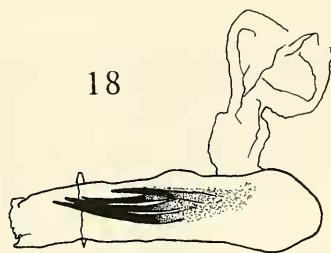
Eromene yuennanensis Caradja, 1937: 151. Lectotype: ♂, 'Likiang. (China). Provinz Nord-Yuennan, 4.8.1934. (not 10.6.1935 as stated in Bleszynski 1965) H. Höne'. Muzeul de Istoria Naturală 'Grigore Antipa', Bucuresti. *Metaeuchromius yuennanensis* (Caradja, 1937) Bleszynski, 1960: 217. – Bleszynski 1963: 112.

Material. – 9♂, 7♀. China: Likiang, 2♂, 1♀ (BMNH), 1♂, 1♀ (RTAS), 3♂, 3♀ (ZFMK), 2♂, 2♀ (BUCU); West Tianmu Shan, 1♂ (ZFMK).

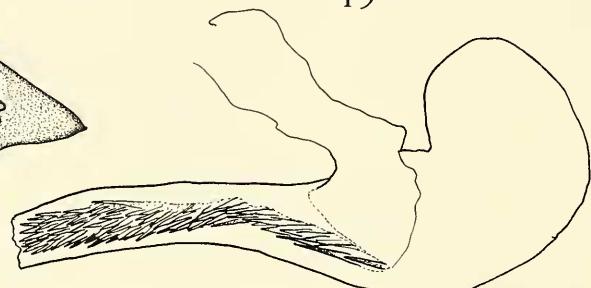
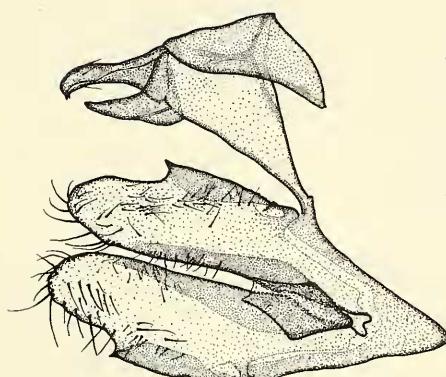
Diagnosis. – Differs in male genitalia from all species in having the valvae asymmetrical and the culillus ending in a bent, slender tip, in combination with the total length of the group of cornuti about equal to that of the aedeagus. Differs in female genitalia (female of *M. changensis* is unknown) in having the ductus bursae split in two parts, of which one is strongly sclerotized and partly armed with spines, ending less sclerotized and somewhat wrinkled.

External characters (fig. 11). – Wingspan 16-20 mm. Frons not produced forward, creamy yellow-white; vertex creamy yellow-white; the length of the labial palp is twice that of the eye diameter, with the sides creamy white at base becoming brown, light brown from above, creamy white from below; maxillary palp light brown, darkly ringed at base of last segment, terminal part light brown; on antenna creamy white, inconspicuously ringed. Thorax brown; patagia yellow-brown; tegulae brown, inner side clearly lined creamy white. Forewing groundcolour creamy white, densely suffused with grey and ochreous to dark brown scales, posterior area with more or less clear dark spot near medial fascia; medial fascia single, slightly convex, running to one-fourth to one-third of the dorsum; subterminal line brown, about midway between terminal dots and termination of posterior area; area adjacent to terminal black dots white; seven black terminal dots, formula 2-3-2; fringes shiny, evenly grey. Hindwing creamy white to grey, subterminal fascia clearly present, termen darkly bordered; fringes creamy white with faint darker line.

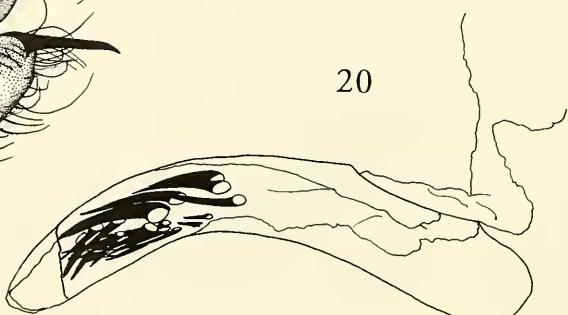
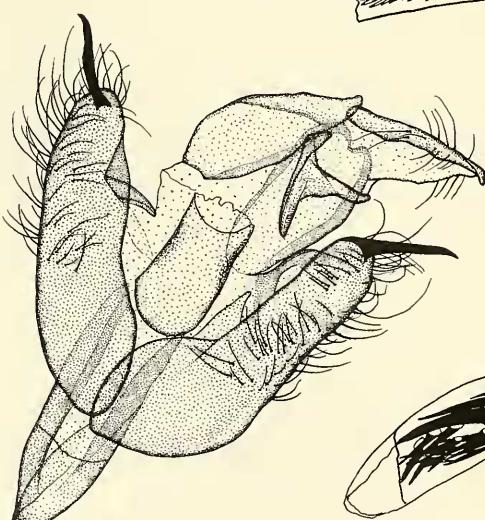
18



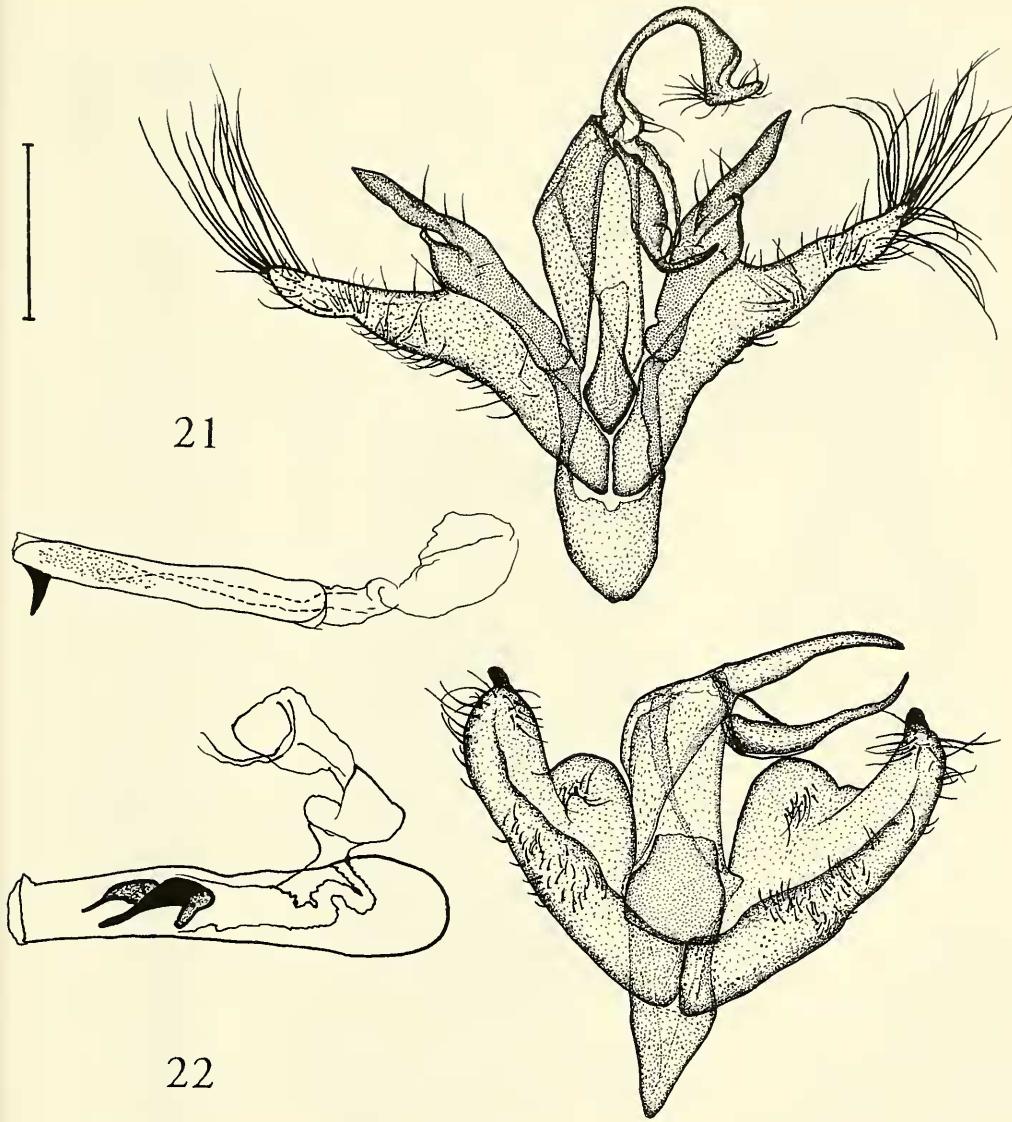
19



20



Figs. 18-20. Male genitalia; ventro-caudal aspect, valvae spread; aedeagus separated, lateral aspect. — 18, *Metaeuchromius circus*; 19, *Metaeuchromius latus*; 20, *Metaeuchromius flavofascialis*. Scale bar 0.5 mm.

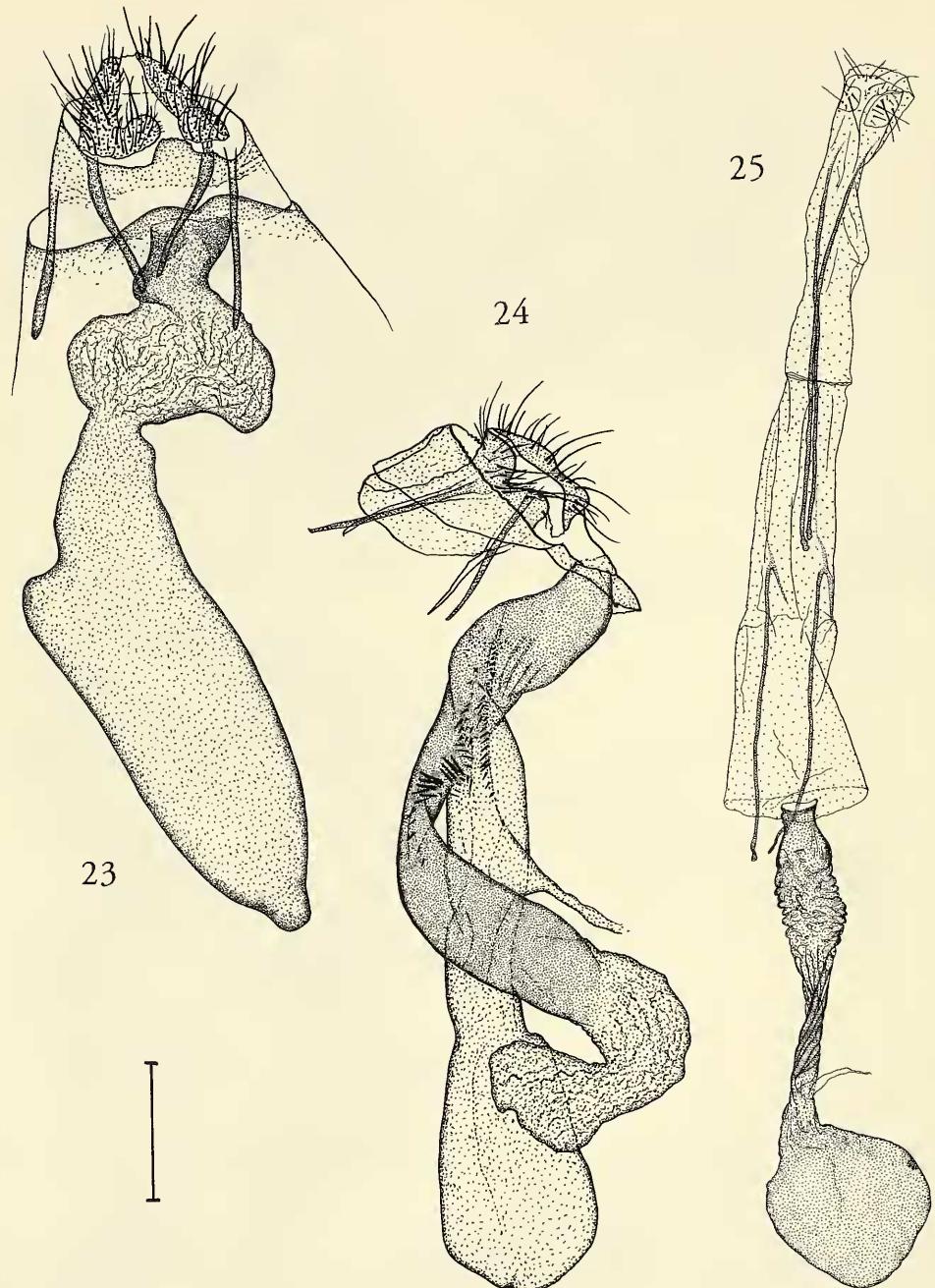


Figs. 21-22. Male genitalia; ventro-caudal aspect, valvae spread; aedeagus separated, 21 ventral aspect, 22 lateral aspect. — 21, *Metaeuchromius euzonellus*; 22, *Metaeuchromius inflatus*. Scale bar 0.5 mm.

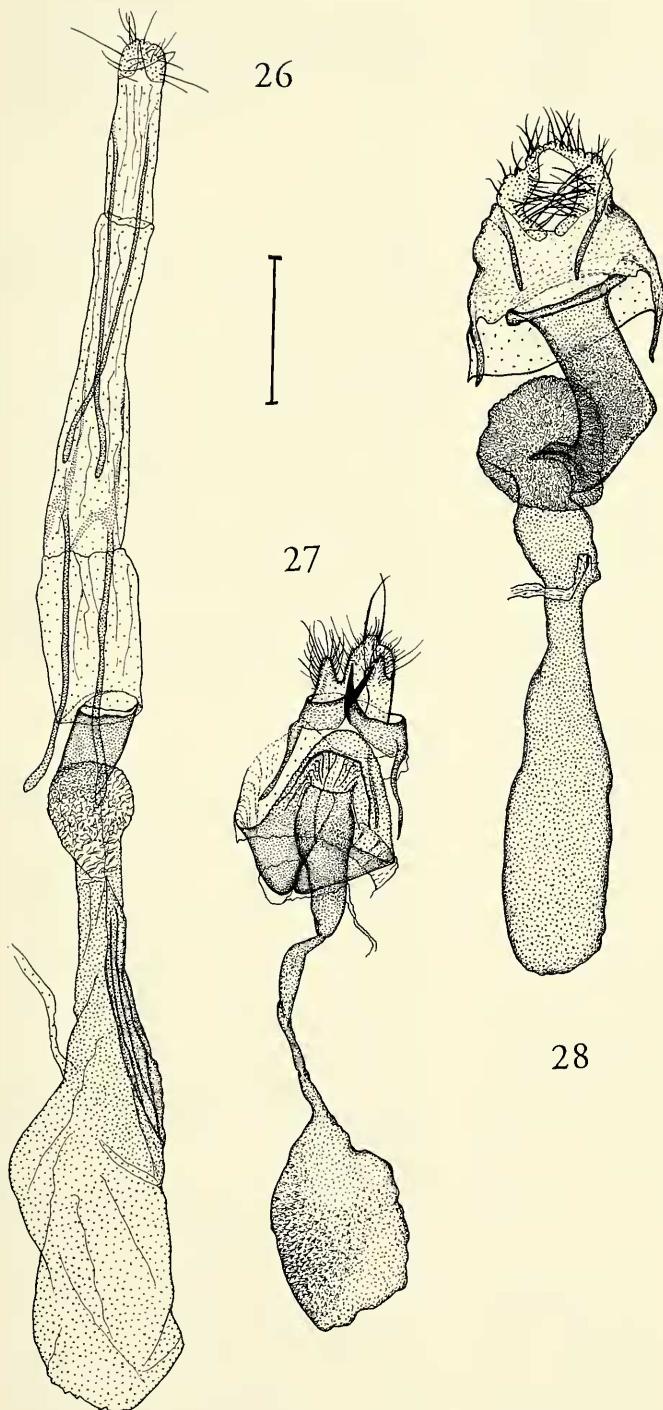
Abdomen. — Two scent organs incorporated in the abdomen, roundish, kidney-shaped, with small opening laterally directed. Wall of scent organs with pits. No special scale formation observed in relation to the scent organs.

Male genitalia (fig. 17). — Uncus tapering to sharp pointed tip; gnathos equal in length to uncus, dorsal thorns absent; valvae asymmetrical, sacculus slender

in one valve, normal in the other, processus basalis somewhat rectangular, cucullus asymmetrical, ending in bent pointed tip unequal in size; juxta large somewhat oblong; vinculum normal; aedeagus shorter than length of smaller valve, with many very long cornuti, total length of cornuti as long as length of aedeagus.



Figs. 23-25. Female genitalia; ventral aspect. – 23, *Metaeuchromius circe*, scale bar 0.5 mm; 24, *Metaeuchromius yuennanensis*, scale bar 0.5 mm; 25, *Metaeuchromius latus*. Scale bar 0.85 mm.



Figs. 26-28. Female genitalia; ventral aspect. — 26, *Metaeuchromius latoides*, scale bar 0.85 mm; 27, *Metaeuchromius euzonellus*, scale bar 0.5 mm; 28, *Metaeuchromius inflatus*, scale bar 0.5 mm.

Female genitalia (fig. 24). — Papillae anales idened; ostium simple; ductus bursae split in two parts, one very long strongly sclerotized part with many spines which ends sac-like, wrinkled and less sclerotized, second part; ductus seminalis narrow; bursa copulatrix oblong, without signum.

Biology. — Unknown. The specimens have been caught in August and September at an altitude of up to 3000 m.

Distribution (fig. 9). — China. See also under remarks.

Remarks. — There may be another species very similar to *M. yuennanensis* occurring in Japan, or *M. yuennanensis* itself inhabits Japan. A specimen was found identified as *M. yuennanensis* in the BMNH. The lack of abdomen makes it impossible to decide whether it belongs to a new species or not.

Metaeuchromius yuennanensis tibetanus Bleszynski

Metaeuchromius yuennanensis tibetanus Bleszynski, 1965: 87.
Holotype: ♂, Batang, (Tibet), Im Tal des Yangtze (ca. 2800 m) 13.9.1936. H. Höne'. Paratypes 1♂, 2♀ 22.9.1936, 18.9.1936, 1.9.1936. All in BUCU.

Diagnosis. — The slightly lighter colouration of the fore wings is the only distinguishing character for this subspecies.

Biology. — Unknown. The specimens have been caught in September at an altitude of 2800 m.

DISCUSSION

The males of *Metaeuchromius yuennanensis*, *M. changensis*, *M. latus*, *M. circe* and *M. euzonellus* have ventrally located abdominal scent organs which provide these species with a synapomorphic character.

M. latoides is only known from the unique female. Comparing this species with the other females of *Metaeuchromius* it can be seen to be most closely related to *M. latus*. This conclusion is based on the almost similar features of the genitalia. The only difference is the presence of a signum in *M. latus* and the presence of two extra black terminal dots in *M. latoides*. This very close relationship allows the conclusion that the up to now unknown male of *latoides* must also have abdominal scent organs.

The males of *M. flavofascialis* and *M. inflatus* lack these male scent organs. However, the placement by Dr. Park of *flavofascialis* in the genus *Metaeuchromius* is in my opinion justifiable considering the other characters it shares with the other members of the genus. *M. inflatus* also lacks the abdominal scent organs, but in light of other characters (wing pattern, gnathos and valvae) it most logically belongs in

Metaeuchromius. *M. euzonellus* has the Sc and R₁ of the forewing partly fused, but the presence of the abdominal scent organs are regarded as being more important. Also, within several other Crambinae genera, and even within a single species, the fusion of Sc and R₁ are known to be variable.

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REFERENCES

- Bleszynski, S., 1960. Studies on the Crambidae (Lepidoptera). Part XXIX. Species of the genus *Euchromius* Gn. — Acta Zoologica Cracoviensis 5: 203-247.
- Bleszynski, S., 1963. Studies on the Crambidae (Lepidoptera). Part 40. A review of the genera of the family Crambidae with data on their synonymy and types. — Acta Zoologica Cracoviensis 3: 91-132.
- Bleszynski, S., 1965. Crambinae. In: H.G. Amsel, H. Reisser und F. Gregor, Microlepidoptera Palaearctica. Vol. 1: i-xlvii, 1-533. Wien.
- Caradja, A. & E. Meyrick, 1937. Materialen zur einer Mikrolepidopterenfauna des Yülingshanmassivs (Provinz Yünan). — Iris 51: 137-182.
- Gaskin, D. E., 1974. The species of *Pareromene* Osthelder (Pyralidae: Crambinae: Diptychophorini) from Malaysia, Indonesia and New Guinea. — Journal of Entomology (B) 43(2): 185-208.
- Gaskin, D. E., 1985. Morphology and reclassification of the Australasian, Melanesian and Polynesian *Glaucocharis* Meyrick (Lepidoptera: Crambinae: Diptychophorini). — Australian Journal of Zoology, Suppl. Series No. 115: 1-75.
- Hampson, G. F., 1896. On the classification of the Schoenobiinae and Crambinae, two subfamilies of moths of the Pyralidae. — Proceedings of the Zoological Society of London 1895: 897-974.
- Landry, B., 1995. A phylogenetic analysis of the major lineages of the Crambinae and of the genera of Crambini of North America (Lepidoptera: Pyralidae). — Memoirs on

- Entomology, International 1, 242 pp. Associated Publishers, Gainesville.
- Maes, K., 1985. A comparative study of the abdominal tympanal organs in Pyralidae (Lepidoptera) I. Description, terminology, preparation technique. — Nota Lepidopterologica 8(4): 341-350.
- Maes, K., 1986. Pyralidae from Turkey. — Nota Lepidopterologica 9(1-2): 78-80.
- Meyrick, E., 1930-1936. Exotic Microlepidoptera. 4.: 1-642. London.
- Minet, J., 1982. Les Pyraloidea et leur principales divisions systématiques. — Bulletin de la Société entomologique de France 86 (1981): 262-280.
- Park, K. T., 1990. Two new species of Pyralidae (Lepidoptera from Korea). — The Korean Journal of Entomology 20 (3): 139-144.
- Schouten, R.T.A., 1988. Revision of the species of the genus *Euchromius* Guenée, 1845 (Lepidoptera: Pyralidae: Crambinae) occurring in the Afrotropical region. — Zoologische Verhandelingen Leiden 244: 1-64.
- Scoble, M. J., 1992. The Lepidoptera: form, function and diversity. — Oxford University Press, New York, 404 pp.
- Staudinger, O., 1870. Beitrag zur Lepidopterenfauna Griechenlands. — Horae Societatis Entomologicae Rossicae 7: 3-304.

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